lopment of Cryogenic engine at ISRO

2613. SHRl SANJAY DALMIA: Will the PRIME MINISTER be pleased to state:

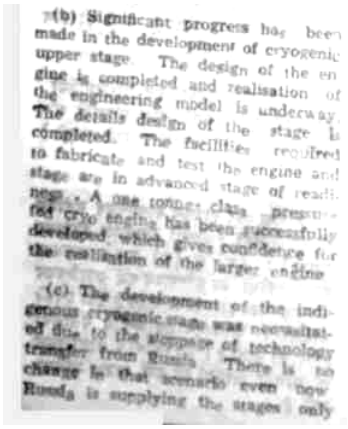
(a) the amount allocated and spent by Govtiiimeni, so far, for the development of Cryogenic engine at ISRO;

(b) the present status of the project;

(c) whether Government propose to make any review in this regard in view of the Russian willingness to supply Cryogenic engine; and

(d) if so, the details in this re gard?

THE MINISTER OF STATE IN THE MINISTRY OF PERSONNEL, PUBLIC GRIEVANCES AND PENSIONS AND THE MLNISTER OF STATE IN THE MINISTRY OF PARLIAMENTARY AFFAIRS (SHRI S. R. BALASUBRAMANIYAN): Government development of indigenous cryogenic upper stage including engi i_L- ii April 1994 with a_n outlay of Rs 335.89 Crores. The expenditure incurred till March 1997 was Rs 144.72 Croret


(b) Significant progress has been made in the development of cryogenic upper stage. The design of the engine is completed and realisation of the engineering model is underway. The details design of the stage is completed. The facilities required to fabricate and test the engine and stage are in advanced stage of realisation. A one tonne class pressure fed cryo engine has been successfully developed which gives confidence for the realisation of the larger engine

(c) The development of the indigenous cryogenic stage was necessitated due to the stoppage of technology transfer from Russia. There is no change in that scenario even now. Russia is supplying the stages only

LUI me i"iuai nJgms of GSLV, view of this, development of th, indigenous cryogenic s.'age is ej,-tial fo_r meeting the requirement! (the GSLV Programme.

(cl) Does not arise.

Cryogenic rocket engine from RussiJ

2614. SHRIMATI VEENA VERI SHRI SUSHIL KUMAR SAi BHAJIRAO SHINDE

Will the PRIME MINISTER KL pleased to stale:

(a) what success has been ack \ od, so far, in securing a Cryogecil rocket engine from Russia; and

(b) what steps have been so far, to produce such an $^t2$ indigenously?

THE MINISTER OF STATE P THE MINISTRY OF PERSONNE PUBLIC GRIEVANCES AND PE: SIONS AND THE MINISTER Orj STATE IN THE MINISTRY C PARLIAMENTARY AFFAIRS [SB S. R. BALASUBRAMANIYAS [fa) The development of 'he engine and stage for the , tial flights of Geo-synehron Vehicle (GSLV) is /Prog sing in Russia. The ' teCbnolOSmock-up model of the cry_0 stage bee_n received in Tndip The pre !ant filling mock up model is for shipmeni in Russia. The ' flight stage i_s expected to be last quanor of this year

overnmr-nt have approved! development of indigenous oyo upper stage including t-ngine ilay of Rs. 335 89 CroreJ- oioc*nt proRress has been made the dpelopment of rryotjcnic up the design of "he engee Vid realisation of

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